

Amendments to the Claims:

This listing of the claims will replace all prior versions, and listings, of the claims in the application:

1 Claims 1-4 (Cancelled)

1 5. (Previously Presented) A switching system for providing a signal in response to an  
2 article which provides a magnetic field, the switching system comprising:

3 (a) a sensor for sensing the magnetic field of the magnetic article, said sensor for  
4 generating a first signal voltage having a signal voltage level which is proportional to a  
5 magnetic field having a first polarity and a second signal voltage having a signal voltage level  
6 that is proportional to a magnetic field having a second different polarity;

7 (b) a threshold detection circuit coupled to the sensor to receive the first and second signal  
8 voltages and to provide an output signal having a first value when said magnetic article is  
9 within a predetermined distance of the sensor regardless of the polarity of the magnetic field;  
10 and

11 (c) a bias circuit coupled to said threshold detection circuit for maintaining operating  
12 signals in said threshold detection circuit within a predetermined range of operating signal  
13 levels in response to changes in supply voltage and operating temperature.

1 6. (Original) The switching system of Claim 5 wherein:

2 said sensor is a magnetic-field-to-voltage transducer for generating a first signal voltage  
3 having a signal voltage level which is proportional to a magnetic field having a first polarity  
4 and a second signal voltage having a signal voltage level that is proportional to a magnetic  
5 field having a second different polarity; and

6        said threshold detection circuit is coupled to said magnetic-field-to-voltage transducer to  
7        receive the first and second signal voltages and to provide an output signal having a first value  
8        when the article is within the predetermined distance of said magnetic-field-to-voltage  
9        transducer regardless of the polarity of the magnetic field with respect to said magnetic-field-  
10       to-voltage transducer.

1       7.       (Original) The switching system of Claim 6 wherein:  
2       said magnetic-field-to-voltage transducer is a Hall element circuit; and  
3       said threshold detection circuit is a comparator coupled to said Hall element circuit.

1       8.       (Original) The switching system of Claim 7 wherein said comparator is a window  
2       comparator comprising first and second differential pair circuits, each of said first and second  
3       differential pair circuits having an input terminal coupled to one of a pair of outputs from said  
4       Hall element circuit and an output terminal coupled to an output terminal of said comparator.

1       9.       (Original) The switching system of Claim 8 further comprising a filter and level shifter  
2       circuit coupled between said Hall element circuit and said comparator.

1       10.      (Original) The switching system of Claim 8 further comprising first and second output  
2       amplifier stages, each of the output amplifier stages coupled between a respective one of the  
3       output terminals of the first and second differential pair circuits and the output terminal of said  
4       comparator.

1       11.      (Original) The switching system of Claim 10 further comprising an output/buffer  
2       amplifier stage having an input terminal coupled to the output terminal of each of said first and  
3       second output amplifier stages and having an output terminal coupled to the output terminal of  
4       said comparator.

1       Claims 12-20 (Cancelled)

1 21. (Previously Presented) A method of switching comprising the steps of:

2 (a) sensing a magnetic field provided by a magnetic article having a first pole and a second  
3 pole wherein said magnetic article has first magnetic field polarity at the first pole and a second  
4 different magnetic field polarity at the second pole;

5 (b) generating a sensor output signal having a signal level which is proportional to the  
6 magnetic field sensed in step (a), wherein the sensor output signal has a first signal direction  
7 when the sensed magnetic field has the first polarity and a second opposite signal direction  
8 when the sensed magnetic field has the second different polarity;

9 (c) comparing the sensor output signal to one of first and second threshold signal levels;  
10 and

11 (d) in response to the sensor output signal level reaching or exceeding the one of the first  
12 and second threshold signal levels, providing an output signal having a first signal level  
13 regardless of the direction of the sensor output signal;

14 (e) in response to the sensor output signal having a first signal level which is less than the  
15 one of the first and second threshold signal levels, providing an output signal having a second  
16 different signal level regardless of the direction of the sensor output signal; and

17 (f) in response to the output signal changing from the first signal level to the second  
18 different signal level, changing a switch point of a threshold circuit from a first predetermined  
19 threshold level to a second predetermined threshold level.

1 Claims 22-23 (Cancelled)

1 24. (Previously Presented) The method of Claim 21 wherein the absolute value of the first  
2 predetermined threshold level is greater than the absolute value of the second predetermined  
3 threshold level.

1 25. (Previously Presented) A switching system for providing a signal in response to an  
2 article which provides a magnetic field, the switching system comprising:

3 (a) a sensor for sensing the magnetic field of the magnetic article, said sensor for generating  
4 a first signal voltage having a signal voltage level which is proportional to a magnetic field  
5 having a first polarity and a second signal voltage having a signal voltage level that is  
6 proportional to a magnetic field having a second different polarity; and

7 (b) a threshold detection circuit coupled to the sensor to receive the first and second signal  
8 voltages and responsive to a supply voltage to provide an output signal having a first value when  
9 said magnetic article is within a predetermined distance of the sensor regardless of the polarity of  
10 the magnetic field, said threshold detection circuit comprising a circuit for comparing said first  
11 signal voltage to a first threshold level and for comparing said second signal voltage to a second  
12 threshold level, wherein said first and second threshold levels are substantially constant in  
13 response to variations in said supply voltage.

1 26. (Previously Presented) A switching system for providing a signal in response to an article  
2 which provides a magnetic field, the switching system comprising:

3 (a) a sensor for sensing the magnetic field of the magnetic article, said sensor for generating  
4 a first signal voltage having a signal voltage level which is proportional to a magnetic field  
5 having a first polarity and a second signal voltage having a signal voltage level that is  
6 proportional to a magnetic field having a second different polarity; and

7 (b) a threshold detection circuit coupled to the sensor to receive the first and second signal  
8 voltages and responsive to a supply voltage to provide an output signal having a first value when  
9 said magnetic article is within a predetermined distance of the sensor regardless of the polarity of  
10 the magnetic field, said threshold detection circuit comprising a circuit for comparing said first  
11 signal voltage to a first threshold level and for comparing said second signal voltage to a second  
12 threshold level, wherein the first threshold level is changed to a third threshold level and the  
13 second threshold level is changed to a fourth threshold level in response to the output signal  
14 changing from the first value to a second value.